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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,714	03/05/2002	Yasutaka Ito	216714US2PCT	3514

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1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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PAIK, SANG YEOP

ART UNIT	PAPER NUMBER
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3742

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/926,714

Applicant(s)

ITO ET AL.

Examiner

Sang Y Paik

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 and 16-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 16-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/25/04, 9/27/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 21, there is no proper antecedent basis for "said at least one bottomed hole." Furthermore, it is unclear where the claimed depth is measured from. In the specification and the drawing figures, the claimed depth seems to be measured from the heating surface. Clarification is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the

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reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-3, 6, 7, 9, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Furukawa (JP 11-40330).

Furukawa shows a ceramic heater with a sintered disc-shaped ceramic substrate made of nitride or carbide ceramics having the thickness of .5-5 mm with a plurality of concentric or circular-shaped heating elements provided in the peripheral portion as well as in the inner portion of the ceramic substrate, the diameter of the ceramic substrate being at least 200 mm and satisfying the claimed expression in claims 2 and 6, and the supporting pins to receive and hold the wafer over and apart from the heating surface.

5. Claims 1-7, 9, 19 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Ito et al (US 6,072,162).

Ito shows a ceramic heater with a disc-shaped ceramic substrate made of nitride ceramic having the thickness of 3-4 mm with a plurality of concentric heating elements provided in the peripheral portion as well as in the inner portion of the ceramic substrate, the diameter of the ceramic substrate being at least 200 mm as shown in the drawing Figures 13A and 13B where the diameter extends up to 424.8 mm and satisfying the claimed expression in claims 2 and 6, the heating elements divided in a quadrant, the ceramic substrate further having the supporting pins provided through the holes 21 to receive and hold the wafer over and apart from the heating surface. Also see column 13, lines 39-46.

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The recited sintered ceramic substrate is a product by process claim wherein the patentability of the product is based on the product itself and not the method such as “sintering” or “sintered” substrate. Also see MPEP 2113.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa (JP 11-40330) or Ito et al (US 6,072,162) in view of Burkhart et al (US 6,469,283).

Furukawa or Ito shows the ceramic heater claimed. Ito further shows that it is known to provide or embed a temperature measuring device such as a thermocouple in the ceramic substrate. However, Furukawa and Ito do not show the claimed control unit, memory unit, and the operation unit for calculating electric power for the heating element.

Burkhart shows a ceramic heater having a temperature sensor such as a thermocouple with a plurality of heating elements. Burkhart shows a control unit which includes a memory as well as the operation unit such as the processor unit that calculates varying electric powers to the heating elements so as to maintain the desired heating temperature.

In view of Burkhart, it would have been obvious to one of ordinary skill in the art to adapt Furukawa or Ito with the claimed units to provide the desired heating temperature across the ceramic heater to more efficiently heat an object such as a wafer.

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8. Claims 16-18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa (JP 11-40330) or Ito et al (US 6,072,162) in view of Masanao et al (JP 09-045752) or Ushikoshi et al (US 5,306,895).

Furukawa or Ito shows the ceramic heater claimed. Ito further shows that it is known to provide or embed a temperature measuring device such as a thermocouple in the ceramic substrate. However, Furukawa and Ito do not show that the ceramic substrate has a bottomed hole into which the temperature measuring device is provided therein.

Masanao shows a ceramic substrate with a bottomed hole where the temperature measuring device is provide in a bottomed hole with a cement to fix the temperature measuring device thereto. Masanao further shows that the depth of the bottom hole to the heating surface is one half or less than one half of the thickness of the ceramic substrate. Ushikoshi shows a ceramic substrate with a bottomed hole where the temperature measuring device such as a thermocouple is provided thereto.

In view of Masanao or Ushikoshi, it would have been obvious to one of ordinary skill in the art to adapt Furukawa or Ito with the bottom hole to more conveniently insert or provide the temperature sensor therein with the an adhesive means such as cement or any other suitable means to more securely fix the temperature sensor therein. Furthermore, it would have been obvious to provide the temperature sensor closer to the heating surface to more accurately measure the heating temperature.

9. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa (JP 11-40330) or Ito et al (US 6,072,162) in view of Morita et al (US 5,118,983) or Allen (US 4,057,707).

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Furukawa or Ito shows the ceramic heater claimed except the insulating layer covering the heating element.

Morita and Allen show it is well known in the art to provide a protective insulation layer to cover the heating element.

In view of Morita or Allen, it would have been obvious to one of ordinary skill in the art to adapt Furukawa or Ito with the insulation layer over the heating elements to further protect and insulate the heating element from its outer atmosphere to prolong the life of the heating element.

***Response to Arguments***

10. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Y Paik whose telephone number is 571-272-4783. The examiner can normally be reached on M-F (9:00-4:00) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. R

Sang Y Paik  
Primary Examiner  
Art Unit 3742

syp